

WO 2004/089519

PCT/EP2004/002482

CLAIMS:

1. Filtering device (1) having a container (2) with an inlet, in which at least one spindle (8) is arranged on which axially mutually offset filtering plates, particularly diaphragm plates (11, are placed, characterized in that more than two of the spindles (8) provided with the filtering plates (11) are distributed in the container (2), and in that the spindles (8) are rotatable relative to the container (2).

2. Filtering device according to Claim 1, characterized in that the inlet (4) leads tangentially into a cylindrical section of the container.

3. Filtering device according to Claim 1 or 2, characterized in that a plurality of spindles (8) are uniformly distributed on a circle having a radius "r" in the container (2).

4. Filtering device according to one of the preceding claims, characterized in that the spindles (8) are vertically oriented.

5. Filtering device according to one of the preceding claims, characterized in that the number of spindles (8) is even.

6. Filtering device according to one of the preceding claims, characterized in that a large number of filtering plates (11) are arranged on each spindle (8).

7. Filtering device according to one of the preceding claims, characterized in that the container (2) has a hydroclonical shape.

8. Filtering device according to one of the preceding claims, characterized in that the container (2) has the cylindrical section (3) and a tapering conical section (5) which leads into an outlet (6) for a solids phase.

9. Filtering device according to one of the preceding claims, characterized in that the container (2) is stationary or non-rotatable.

10. Filtering device according to one of the preceding claims, characterized in that the diameter of the diaphragm plates (11) is so large that the diaphragm plates (11) of adjacent spindles (8) overlap in their outer circumference area, the diaphragm plates (11) of adjacent spindles (8) being arranged in a correspondingly axially mutually offset manner.

11. Filtering device according to one of the preceding claims, characterized in that the container (2) is closed by means of a lid which simultaneously serves as a bearing housing (7) for the spindles (8) which project in a mutually parallel manner in each case from above into the container (2).

12. Filtering device according to one of the preceding claims, characterized in that the spindles (8) are each rotatably disposed by means of bearings (9) in bores (10) of the bearing housing (7).

13. Filtering device according to one of the preceding claims, characterized in that the spindles (8) are overmounted in the bearing housing (7).

14. Filtering device according to one of the preceding claims, characterized in that the bearings (9) are protected from a product overflow by means of leakage drains (16).

15. Filtering device according to one of the preceding claims, characterized in that the diaphragm plates (11) consist of a ceramic material.

16. Filtering device according to one of the preceding claims, characterized in that the diaphragm plates (11) have a two-layer construction, an annulus being constructed between the two upper and lower ceramic layers, which annulus leads toward the interior into discharge ducts (13) extending in the spindles.

17. Filtering device according to one of the preceding claims, characterized in that the discharge ducts (13) lead from the spindles (8) into a common discharge bore (14) in the bearing housing (11).

18. Filtering device according to one of the preceding claims, characterized in that the diaphragm plates (11) have a thickness  $b$  in the axial direction, and in that the axial spacing  $a$  between the diaphragm plates (11) on each spindle (8) meets the requirement  $a > d(b)$ .

19. Filtering device according to one of the preceding claims, characterized in that the spindles (9) are rotatable by means of a drive.